

# TEST & INSPECTION

## 1 - LENOX AUTOSCOPE

Since its introduction in the mid 80's, the Autoscope has been the choice borescope inspection tool of aircraft engine manufacturers Teledyne Continental and Textron-Lycoming. It's an easy to use, portable, inexpensive, battery powered side viewing borescope that is optimized for viewing cylinder walls, and engine valve areas. The complete Autoscope kit includes the borescope, a heavy-duty battery handle with a 6 foot cord, and a plastic case. The Autoscope is recommended by Continental to perform the borescope inspection phase of their SB03-3 Service Bulletin.

No. 6600K-900 ..... (9" kit).....

No. 6600K-1500 ..... (15" kit).....



## 2 - UXR 2-WAY ARTICULATING FIBERSCOPE KIT

This is the best of the UXR semi-rigid fiberscope line. It uses the same high-resolution fiber bundle found in their top-of-the-line models to produce exceptional images. But the most remarkable feature of this fiberscope is its articulating tip. By actuating a small lever located near the eyepiece, you can swing the tip from side to side through a 240° arc. That's the real power of this fiberscope: you bend it to get into the area, and once you're there, you can inspect the entire area without having to reposition the fiberscope, by simply controlling the tip. The complete kit includes: the Articulating Fiberscope, a high-intensity light source, and a carrying case.



DIAMETER	WORK LENGTH	FIELD OF VIEW	VIEW DIR	MAGNIFY
.315" (8mm)	24" (610mm)	60°	Variable	25X (max.)

No. FFPACK3A..... (100-watt AC Unit).....

No. FFPACK3B..... (Portable Battery Unit and Charger).....

## 3 - VISUAL OPTICS INSPECTION FIBERSCOPE

The first generation of field fiberscopes entered the market at a great price, but for the experienced inspection specialist, who's accustomed to using nothing but the best, their lack of resolution and inadequate lighting made them seem a bit "toyish."

Not so with the new VO Scope. With its 7,400 pixel fiber bundle, the VO Scope has almost as much resolution as a 10,000 pixel Jet Scope costing upwards of \$5,000. The lighting comes from a clever design which places two color-correct "super white" LEDs at the tip of the probe (10mm models) for maximum area illumination. This is no toy. It's a serious inspection tool of uncompromising quality at an unbelievable price point.

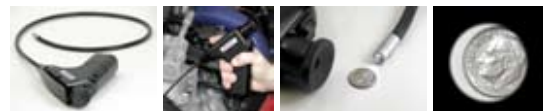
- High resolution 7,400 pixel fiber bundle
- 6mm and 10mm shaft diameters
- 24" (610mm) or 36" (910mm) lengths
- Includes rugged instrument case
- 40° Field of View
- 1/2" (13mm) to infinity focal range
- 2-level LED or Halogen light source
- Obedient (holds shape) or Full Flex shaft



The next generation of affordable fiberscopes

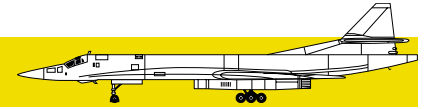


PART NO.	DIA	SHAFT TYPE	LIGHTING	PRICE
VO24-10	10 mm (.394")	24" Obedient	Super White LED	
VO36-10	10 mm (.394")	36" Obedient	Super White LED	
VO24-6	6 mm (.236")	24" Full Flex	Halogen	
VO36-6	6 mm (.236")	36" Full Flex	Halogen	
VO-M10	90 degree Tip Mirror (for 10mm scopes)			
VO-M6	90 degree Tip Mirror (for 6mm scopes)			



Second Generation Technology • Slimline Probe • Brilliant Lighting • Exceptional Image Clarity • Modern Ergonomic Design • Sleek, Stylish Looks • Durable Construction

# TEST & INSPECTION



## 1 - HAWKEYE® PRECISION BORESCOPE KITS

Hawkeye Precision Borescopes by Gradient Lens Corporation are simply the finest boscopes you can buy at a realistic price. They employ the patented endoGRINs lens system to eliminate lens aberrations, which causes loss of image quality.

The eyepiece focuses and magnifies objects from infinity down to 0.004" (1mm) with a 50° Field Of View at a maximum magnification of 120X depending on the distance to the object, and can be adjusted to correct for eyesight.

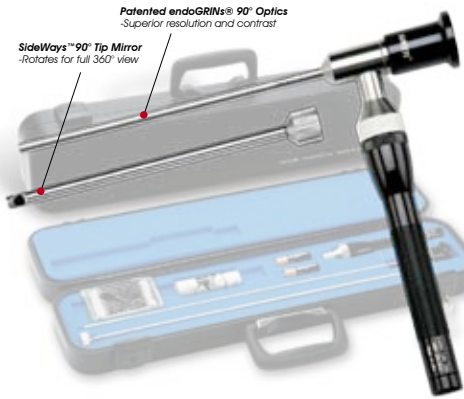
There are three (3) models to choose from. The **CLASSIC MODEL** comes with powerful Mini-Maglight® source, while the **NOVA MODEL** features the more powerful superNOVA Rechargeable Light that delivers ten times (10X) the intensity (highly recommended for engine inspections). The **PRO MODEL** also comes with the superNOVA light, and sports the next generation endoGRINs e2 technology for an exceptionally bright image. The Pro Model also features an independent focusing ring, making it more suitable for use with a digital camera or video.

### Each Hawkeye Precision Borescope Kit contains:

- Hawkeye Precision Borescope
- SideWays® 90° Tip Mirror Tube
- Mini-Maglite or superNOVA (depending on model)
- Hawkeye Cleaning Kit
- Rugged Aluminum Hawkeye Carrying Case



PART NO.	MODEL	LEN	DIA	PRICE
HH12-AF-KIT	Classic	12" (305 mm)	.313" (8 mm)	
HH12-AF-NVK	Classic Nova	12" (305 mm)	.313" (8 mm)	
PH12-NVK	Pro Nova	12" (305 mm)	.313" (8 mm)	



Patented endoGRINs® optical system produces exceptional clarity, and includes slide-on SideWays™ mirror to allow inspection of cylinder walls, valves, and valve seats.



## 2 - HAWKEYE® FLEXIBLE BORESCOPIES

Hawkeye Flexible Borescopes have 18,000 optical glass fibers, delivering high resolution, sharpness, and image detail comparable to a rigid borescope. Image quality is further enhanced by the use of ACID LEACHED fiber bundles to greatly improve contrast and color. Illumination comes from a powerful, portable superNova light directed through glass fibers to the subject. A clear bright image is returned to the eyepiece revealing burrs, contaminants, or fractures. The Hawkeye Flexible Borescope is available in two models.

The **CLASSIC MODEL** features a plastic coated, stainless steel semi-rigid shaft that keeps its shape when bent to work around obstacles. It has a diameter of only .320" (8 mm) to easily fit into small openings.

The **PRO MODEL** ups the ante by including full **TWO-WAY ARTICULATION** and features a super-tough stainless steel braided shaft that's only .200" (5 mm) in diameter. This unit is the perfect turbine inspection tool.

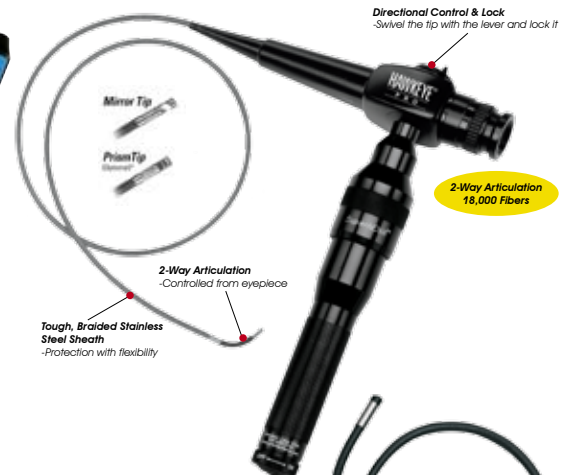
### Each Hawkeye Flexible Borescope Kit contains:

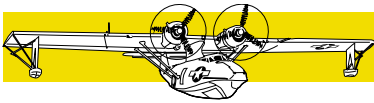
- High Resolution Hawkeye Flexible Borescope
- Mirror Tip (optional tip prism available)
- Hawkeye superNOVA Light and Charger
- Hawkeye Cleaning Kit
- Rugged Aluminum Hawkeye Carrying Case



Acid-leached 18,000 fiber bundle

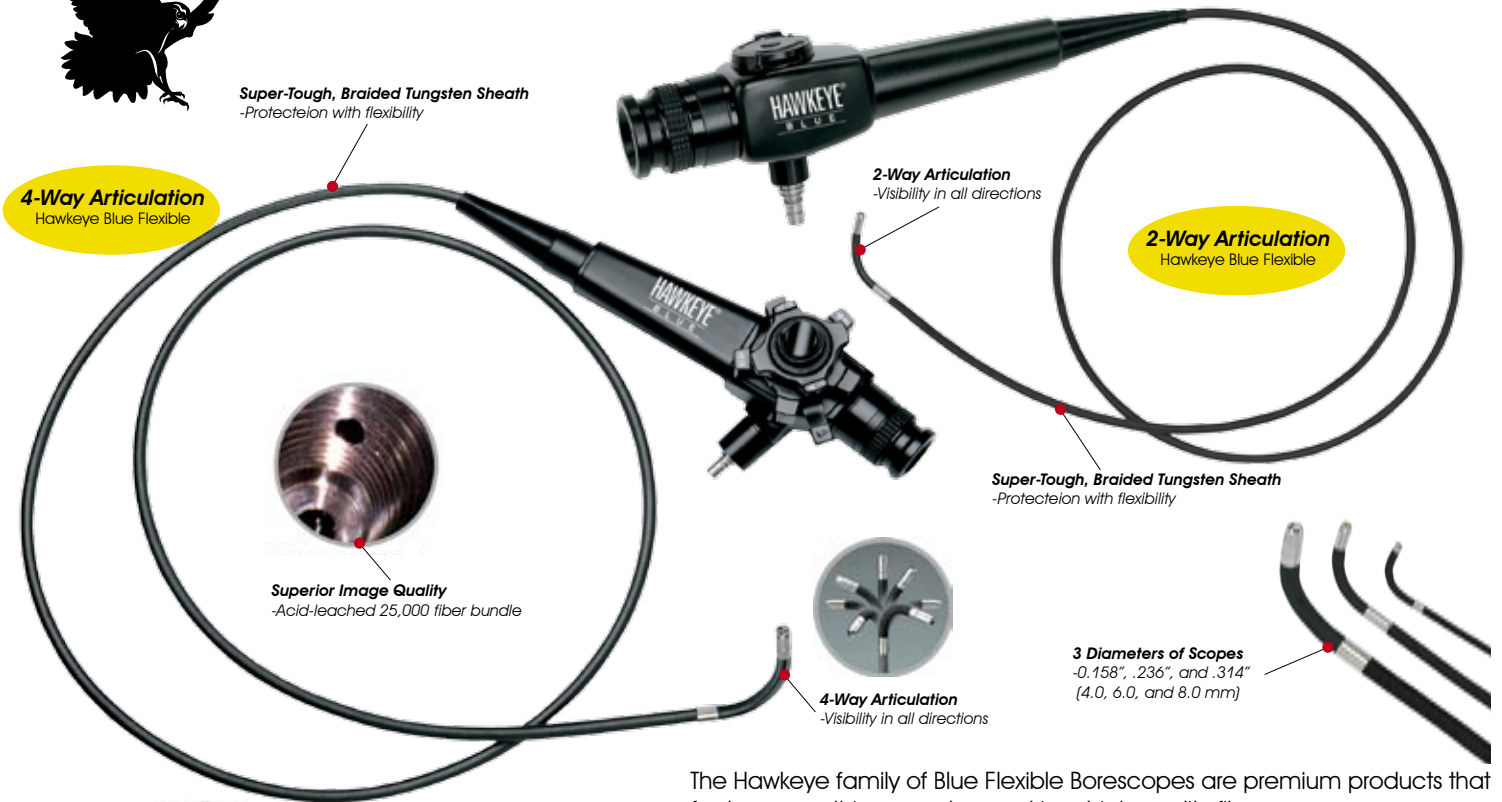
PART NO.	ARTICULATION	FOV	LEN	DIA	PRICE
HFB2-NVK	NONE	45°	39.4" (1 m)	.310" (7.9 mm)	
PFB1-NVK	2-WAY	45°	31.5" (.8 m)	.200" (5 mm)	





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## HAWKEYE® BLUE FLEXIBLE BORESCOPIES



**Super-Tough, Braided Tungsten Sheath**  
-Protection with flexibility

**4-Way Articulation**  
Hawkeye Blue Flexible

**Superior Image Quality**  
-Acid-leached 25,000 fiber bundle

**2-Way Articulation**  
-Visibility in all directions

**2-Way Articulation**  
Hawkeye Blue Flexible

**Super-Tough, Braided Tungsten Sheath**  
-Protection with flexibility

**4-Way Articulation**  
-Visibility in all directions

**3 Diameters of Scopes**  
-.158", .236", and .314"  
(4.0, 6.0, and 8.0 mm)



The Hawkeye family of Blue Flexible Borescopes are premium products that feature everything you demand in a high quality fiberscope.

The list of winning features begins with an acid-leached, high-density fiber optical bundle. Acid-leaching is an expensive production process that reduces crosstalk between the individual fibers to enhance image contrast and clarity to a level approaching that of rigid scopes. And with a density of 25,000 fibers per bundle, the image produced is crystal clear with virtually no pixellation. It's a difference you have to see to truly appreciate.

Next in the list of premium features is an almost indestructible Braided Tungsten Sheath that can be immersed in liquids such as fuel without leakage. Tungsten will not rust or corrode, nor will it react with fuels, oils, or solvents - a must when inspecting turbines.

Last but not least, you have a choice of either 2-way or a 4-way articulation, depending on the model. Articulation range is a wide 240° (± 120°) with a 45° Field of View (FOV) for the 6mm and 8mm models, and a panoramic 90° FOV for the 4mm model.

### Features and Specifications:

- 45° or 90° Field-of-View
- High resolution image bundle
- Durable Tungsten braid sheath
- Standard Hawkeye (ACMI) light post
- Large image size
- High-grade Aluminum handle
- Fuel tight shaft
- Metal case with die cut foam included.

PART NO.	ARTICULATION	FOV	LEN	DIA	PRICE
HBF-040	2-WAY	90°	39.4" (1 m)	.158" (4 mm)	\$
HBF-060	2-WAY	45°	70.8" (1.8 m)	.236" (6 mm)	\$
HBF-080	4-WAY	45°	70.8" (1.8 m)	.314" (8 mm)	\$
LXX24	Luxxor 24 watt halogen light source (30X brightness)				\$
LXX50	Luxxor 50 watt metal halide light source (60X brightness)				\$
LXXLG	Luxxor Light 7 ft Guide (required for above light sources)				\$

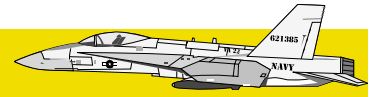
**Luxxor™**  
**Forget Something?**  
Don't forget to purchase a light source for your Hawkeye Blue Borescope.



**IMPORTANT NOTE:** Hawkeye Blue Borescopes do not come with lighting or light guides. They must be purchased separately.



# TEST & INSPECTION



## 1 - DIGITAL CAMERA SYSTEM (For HAWKEYE borescopes & fiberscopes)

In this age of affordable high quality digital cameras, there is absolutely no reason why you shouldn't document your inspections. Especially if it involves subsequent maintenance work. And it's especially important to keep digital documentation if you run your own maintenance shop. This premium Luxxor kit connects to your Hawkeye Borescope or Fiberscope (not included) to produce razor sharp digital pictures. The camera can also be set to movie mode to show real-time events such as fluid leaks or loose parts. This camera kit includes the Sony DSC-H9 camera, DCC-58 Camera Coupler, Luxxor Extension Tube for Sony H9, 256MB Memory Stick PRO, Hawkeye SuperNOVA Light, and SuperKit Carry Case. *Note: This kit does not include a Hawkeye borescope, or Fiberscope, which must be purchased separately.*

No. SDC-H5-KIT..... (Camera Kit).....



- 8.1 MP digital sensor
- 15X magnification adjust to fit the image to the frame.
- SteadyShot™ Picture Stabilization neutralizes borescope shake.
- Movie mode for real-time documentation.

## 2 - VIDEO CAMERA SYSTEM (For HAWKEYE borescopes & fiberscopes)

Add video capability to any Hawkeye Borescope! Video allows you to inspect faster and more comfortably, view images with others and record images for documentation. When using our Luxxor Video System (LXX-VBSM) and the optional VidCap USB 2.0 (VC-USB2) Video ToolBox software, you can display live video on your computer screen and capture, annotate and save images or movies.



VidCap USB 2.0 connects the Sony XC-555 video camera to any laptop or desktop computer with a USB 2.0 port. VidCap USB 2.0 includes Video ToolBox software which provides easy access to video and still image capture, labeling and measurement functions. With Video ToolBox, everything happens on the live image, making inspection faster and more efficient.

Note: Does not include a Hawkeye borescope, which must be purchased separately.

No. LXX-VBSM..... (Video Kit).....

No. VC-USB2 ..... (USB 2.0 Image Capture Software).....



- Easy on eyes. No looking through eyepiece
- View crystal clear, magnified images with colleagues for team inspections
- Shoot video and still images, then archive, e-mail, print, and analyze them
- 1/2" CCD 768 (H) x 494 (V) pixels
- NF lens mount with C-Mount adapter
- 3 lux sensitivity (F 1.2, AGC on)
- 1/4" -20 tripod mount.

## 3 - HAWKEYE® DIGITAL CAMERA & VIDEO COUPLERS

Already have a digital or video camera? Then you can take pictures of your inspections with the use of a coupler. It attaches to your camera and couples it to your Hawkeye Borescope or fiberscope. Select a coupler that matches your camera lens diameter

- No. DCC-28 .....(28 mm Digital Camera Coupler) .....
- No. DCC-37 .....(37 mm Digital Camera Coupler) .....
- No. DCC-49 .....(49 mm Digital Camera Coupler) .....
- No. DCC-52 .....(52 mm Digital Camera Coupler) .....
- No. DCC-58 .....(58 mm Digital Camera Coupler) .....
- No. VC-25 .....(25 mm Focal Length Video Coupler) .....
- No. VC-35 .....(35 mm Focal Length Video Coupler) .....
- No. VC-75 .....(75 mm Focal Length Video Coupler) .....

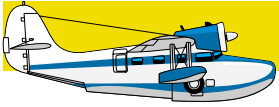


## 4 - HAWKEYE® LIGHTING

Larger cavities and darker surfaces need more light. So, if you intend to use your Hawkeye to do wing and fuselage inspections, we highly recommend that you consider getting a brighter light source such as the superNOVA, or the Luxxor AC light source.

- No. MMAA .....(Replacement MINI-MAGLITE with adapter) .....
- No. SUPERNOVA ..... (SuperNOVA Light with Charger 10X brighter).....
- No. LXX24..... (Luxxor 24 Light 30X brighter).....
- No. LXX50..... (Luxxor 50 Light 60X brighter).....
- No. LXXLG .....(Luxxor Light Guide - required for LXX24 and LXX50) ....





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## 1 - TELESCOPING LIGHTED MAGNETIC PICKUP & MIRROR SET

The pickup wand features a bright white LED light at the end of the chrome plated shaft that telescopes to 26". The super strong rare earth magnet is capable of lifting up to 5lbs, and it's shielded so it won't attract peripheral objects. The 2-1/4" diameter oversized mirror is mounted on a universal joint that adjusts to any angle, and the chrome plated shaft telescopes to 36". Both the pickup and mirror feature foam covered handles for comfort. Complete set includes plastic carrying case.

No. ELB910 ..... (Complete Kit) .....



## 2 - STEELMAN BEND-A-LIGHT

Bend-A-Light is a flexible high intensity light that bends to any configuration and illuminates hard-to-reach areas where conventional lighting cannot go. High intensity halogen bulb provides ample illumination for any type of inspection task.

No. 10150A ..... (10" Bend-A-Light) .....

No. 16102 ..... (5" Mini-Pro) .....



## 3 - INSPECTION MIRRORS

All angle ball joint. Insulated vinyl grip.

PART NO.	FACE	DESCRIPTION	PRICE
S22	3-1/2"x2"	16" Telescoping	
E22	2-1/4" dia.	14" Telescoping	
C22	1-1/4" dia.	8-1/2" long with clip	
B22	1"x2"	8-1/2" long with clip	



## 4 - STEELMAN LIGHTED INSPECTION MIRROR

The STEELMAN Inspector aids inspection and more importantly saves time! Inspector is a one-hand tool that comes with a very bright light that illuminates the total inspection area. Easy to operate thumb knob mirror angle from 0 to 90 degrees. The inspection mirror is 1" x 2". 4X magnifying mirror. Made in U.S.A.

No. 50101 .....



## 5 - BRIGHTYES PRO-LIGHT

The Brighteyes Pro places two high-intensity beams wherever you look and allows both hands free to work. May be worn over regular eyeglasses. Batteries included.

No. 80205 .....



## 6 - OPTIVISOR®

OptiVisor® is a precision binocular headband magnifier which utilizes a dual acrylic lens system, worn on the head to leave both hands free. The dual lens system gives a three dimensional view without any distortion. High impact acrylic lenses are prismatic so that the eyes focus on the object being viewed, thereby relieving eyestrain.

- High impact optical prismatic lenses - Magnifies 2-1/2 times at 8" focal length.
- High Impact visor - Provides a tough, durable, always new appearance.
- Genuine Leather Comfort Band - Padded with orthopedic felt adds to comfort.
- Can be worn over prescription eyeglasses or safety glasses.

No. DLX5 .....

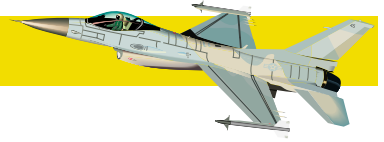
No. DLT-06 ..... (Optional VisorLight®) .....



DLT-06



# TEST & INSPECTION



## 1 - TRUTACH II DIGITAL PROPELLER TACHOMETER

The new all digital TruTach II measures propeller RPM to a remarkable accuracy of 1 RPM. It features a digital signal filter that eliminates noise and gives solid readings. TruTach II works on single or multi-engine propeller aircraft with 2, 3, 4, or 5 blades, and it never needs adjustment. Easily check calibration anytime with a standard light. RPM Range 240 - 7000 RPM. Uses a standard 9 Volt battery (included). Compact 3.8 x 2.4 x 1.5 inches and weighs just 4 Ounces. Includes impact resistant carrying case. 5 Year Warranty. Designed and built in the USA by Pilots for Pilots.



No. TRUTACH2.....

## 2 - CERMARK DIGITAL PROPELLER TACHOMETER

The all-digital design of this tachometer makes it accurate to within 10 rpm at all scales. It's large LCD display updates two times a second for nearly continuous readout. Use it from inside your cockpit to monitor the performance of your aircraft tachometer.

- One hand operation - control everything by pressing only one button.
- Automatic power off feature saves battery power.
- Reads from 10 to 10,000 RPM in 10 RPM increments.
- Direct Reading of 2, 3, and 4 bladed propellers.
- Uses standard 9V battery (not included).



No. 310B .....

## 3 - 360° DIGITAL PROTRACTOR

This precision instrument is engineered to be accurate to within 1 degree of level and plumb, it provides a full 360 degree reading so that the unit may be used accurately, even upside-down. Reading hold feature lets you take a reading in any situation. Extra large LCD readout for easy viewing. Machined aluminum frame will take just about any punishment. Batteries are included. 1-year warranty.



No. PR0360 .....

## 4 - FLASHPOINT MINIATURE INFRARED THERMOMETER

Flashpoint instantly measures the temperature of any object -- hot or cold -- without ever touching it. Just point, shoot and read the digital LCD display. Quickly and easily check the surface temperature of faulty engine cylinders, overheating avionics, worn brake pads, sealing irons, etc... A great diagnostic tool for taking accurate temperature readings or for tracking down heat related problems. Palm-sized, Lightweight (only 1.13 ounces). Reads a very wide temperature range, from -27 to +428°F (-33 to +220°C).



No. DTXP3100.....

## 5 - MINI INFRARED THERMOMETER

Excellent diagnostic tool for tracking down overheats in avionics, or for checking for cold cylinders. Accurate to within 1 degree from up to 12" away. Measures from -27 °F to 428 °F (-33 °C to 220 °C).



No. MTD-002 .....

## 6 - LASER ASSISTED INFRARED THERMOMETER

Laser assisted digital thermometer allows you to pinpoint avionics overheats to the component level; check manifold, and exhaust temperatures with digital accuracy; monitor oil temperature; or find electrical overheats before they turn into fires! Accurate to within 1 degree. Measures from -76 °F to 752 °F (-60 °C to 400 °C). 9:1 Distance-to-Sight ratio accurately reads the temperature of areas as small as 3" from up to 2 feet away.



No. MTD-EXP.....





# TEST & INSPECTION



## 1 - MAGNAFLUX® PORTABLE SPOTCHECK KIT

An undetected crack can be deadly! Critical aircraft areas, especially around stud mounts, can and do crack. And sometimes the flaw is too small to be noticed with the naked eye. That's why you need the new Magnaflux Spotcheck Portable Kit. It's a complete dye penetrant test kit containing everything you'll need to find surface defects in welds, castings, and forgings. The Spotcheck Portable Kit comes in a rugged plastic case and includes complete instructions.

- 2 cans of SKC-S Cleaner/Remove
- 1 can of SKD-S2 Developer
- 1 can of SKL-SP1 Penetrant
- Carrier/Dispenser Pack
- Marking Pen
- Packet of SCRUBS™ Hand Cleaner
- Wiping Cloth
- Complete Instructions

No. SK416 .....(Complete Kit) .....



## 2 - MAGNAFLUX® SPOTCHECK DYE PENETRANT TEST KIT

The General Purpose Dye Penetrant inspection kit is used throughout the industry for the detection of surface defects. Suitable for the inspection of most solids, Spotcheck Dye Penetrants give clear, vivid indications of surface flaws, for just pennies a check. The compact carrying case permits this complete, lightweight kit to be taken anywhere. Kit consists of 2 cans Spotcheck SKL-HF/S Penetrant, 4 cans SKC-NF/AC-7B Cleaner/Remove, and 2 cans SKD-NF Developer. Includes brush, cloth and instructions, Cans are 16 oz. aerosol .

No. SK816.....(Complete Kit) .....

No. SKL-SP1 .....(Penetrant, 16 oz. Aerosol Can) .....

No. SKD-S2 ..... (Developer, 16 oz. Aerosol Can).....

No. SKC-S .....(Cleaner/Remove, 16 oz. Aerosol Can) .....



## 3 - MAGNAFLUX® ZYGLO™ PENETRANT TEST KIT

Zygro has long been accepted as the standard industrial penetrant test to detect cracks, pores, leaks and other defects in solids - metallic or otherwise. Under the high-intensity Zygro Black Light you see cracks and defects as glowing signals - even ones you'd miss entirely by any other penetrant test method. The test is quick, easy and positive. The Portable 100-watt Black Light, supplied with the kit, is unique in its high-intensity black light output -- much higher than standard lights. With this intense black light and the strongly fluorescent Zygro penetrants, defects glow brilliantly in normally lighted area. With Zygro you get increased inspection efficiency and accuracy at a remarkably low cost. Kit consists of 1 can ZL-27A Penetrant, 1 can ZP-9F Developer, 2 cans SKC-S Cleaner/Remove, and the portable 100-watt Black Light (115 AC., 60Hz). Comes complete with instructions, cleanup scrubs, and cloth. Meets MIL-I-25135 Rev. E specifications (Non-Halogenated).

No. ZA70 .....(Complete Kit) .....

No. ZL-22A.....(Penetrant, 16 oz. Aerosol Can) .....

No. ZP-9F..... (Developer, 16 oz. Aerosol Can).....

No. SKC-S .....(Cleaner/Remove, 16 oz. Aerosol Can) .....

No. ZB-23A ..... (100 Watt Black Light).....



## 4 - MAGNETIC FIELD INDICATOR

Can be used with Magnaflux to detect magnetic field, also current indicator. Extremely sensitive. Measures from -10 to +10 Gauss in 1 Gauss increments.

No. 7308 .....

